FUNDING RESEARCH THROUGH EXTERNAL AID
AN EXPLORATORY STUDY OF THE EGYPTIAN CASE
1975 - 1982

****

DR. WADOUDA BADRAN
CAIRO UNIVERSITY

****

Funding Research through external aid is an important issue for the developing countries. By research we refer to the process of studying or investigating facts with the purpose of acquiring new knowledge related to one or more branches. By external aid we refer to aid given by foreign donors whether they be governmental or non-governmental and whether such aid is given on a bilateral or multilateral basis. The developing countries suffer from limited resources. Thus while research is a cornerstone in development, these countries accord a low priority to research due to their concern with other immediate problems such as subsidizing food and housing. The result in many cases is an absence of suffcient local research and dependence on the research undertaken abroad to solve problems which are in many cases characteristic of these particular countries, i.e the inappropriate application of results. Thus external aid is important for these countries to undertake development. However, increased dependence on external funds for research raises many questions as to its relevance to domestic development, the extent of coordination between different donors and whether such aid sets limits on the freedom of action of the developing countries.

This paper is an exploratory research into funding research through external aid in Egypt during the period 1975-1982. By exploratory research we mean research whose main purpose is gaining familiarity with a phenomenon or achieving new insights into it, often in order to formulate a more precise research problem. Exploratory studies are usually the most appropriate in cases of problems about which little information is available[1]. The period 1975-1982 was a period which experienced a sharp increase in external funds for research in Egypt. However, little systems work has been done in exploring the overall picture of such funds in terms of who are the donor, their areas of concentration and the problems involved in undertaking such research.

The paper is the result of a survey of thirteen donors and three recipients in Cairo. Data on the amount of funds devoted to research was obtained from the Egyptian ministry of Investment and from the respective donors and recipients.

.../2

The study is divided into three main parts:

PART ONE: deals with the research environment in Egypt. This part will address the Egyptian human resources and institutions and local funding for research.

PART TWO: deals with the donors of external funds for research. It will focus on the amounts of funds, their areas of concentration and suggestions for future research.

PART THREE: deals with the problems involved in the research process from the donors' and the recipients' points of view. Ten problems were idintified: the national security problem, the absence of an overall research plan, the inavailability of Egyptian funds, the salary scales of Egyptian researchers, foreign experts and equipment, the procedure problem, the coordination problem, the continuity problem and the implementation problem.

The paper will conclude with a few suggestions as to how to make better use of available funds.

ible 1.1

Number of University Graduates 1961-1980 and Number of those alive by 1980

No. and percentage / Faculty/ Institution	BY 1961		1962-1966		1967-1971		1972-1976		1977		1978		1979		1980		BY 1980		No of Alive by 1980
	No.	%	No	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	
Arts	17480	19.64	11973	13.45	13486	15.15	16847	18.93	6238	7.01	6526	7.23	8071	9.07	837*	9.42	89000	100	83535
Languages	122	3.89	755	24.06	523	16.98	650	20.71	228	7.27	241	7.68	293	9.24	316	10.07	3138	100	3054
Languages & Translation	—	—	—	—	92	7.36	476	38.08	163	13.04	144	11.52	188	15.04	187	14.96	1250	100	1234
Antiquities	—	—	—	—	—	—	481	28.29	361	21.24	290	17.06	271	15.94	297	17.47	1700	100	1693
Information	—	—	—	—	—	—	430	22.59	326	16.93	361	18.74	387	20.09	417	21.65	1926	100	1914
Law	21942	32.01	7900	11.53	9085	13.25	11763	19.16	3926	5.73	3977	5.80	4275	6.24	5672	8.28	68540	100	58663
Legislation & Law	4019	34.73	1771	13.61	1635	12.57	2824	21.70	755	5.80	630	4.84	600	4.61	278	2.14	13012	100	11958
Police	4350	30.64	1409	9.92	2043	14.39	3503	24.67	932	6.56	705	4.97	668	4.71	588	4.14	14198	100	12095
Theology	3076	29.35	1668	15.92	1769	16.88	2421	23.10	532	5.08	344	3.28	421	4.02	248	2.37	10479	100	9712
Arabic Language	4446	32.36	2251	16.38	2066	15.03	2631	19.15	633	4.61	593	4.32	583	4.24	537	3.91	13740	100	13704
Dar El Anlum	5335	40.34	1441	10.90	1563	11.82	2681	20.28	648	4.90	500	3.78	585	4.42	471	3.56	13224	100	10538
Islamic & Arabic Studies	—	—	—	—	1357	22.05	3115	50.61	836	13.58	299	4.86	288	4.68	260	4.22	6155	100	6119
Education	4354	7.85	27.61	4.98	5108	9.22	15931	28.74	5804	10.47	6783	12.24	7617	13.74	7076	12.76	55434	100	54298
Physical Education	1797	10.58	1983	11.66	3466	20.39	4665	27.44	1382	8.13	1353	7.96	1302	7.66	1052	6.10	17001	100	16406
Technical Education	565	12.09	521	11.15	1188	25.42	1164	24.91	362	7.75	500	10.70	359	7.68	14	.30	4673	100	4515
Theatrical Art	361	29.45	191	15.58	246	20.06	191	15.58	58	4.73	76	6.20	66	5.38	37	3.02	1226	100	1158
Social Workers	2046	8.32	2280	9.27	25.48	10.36	7139	29.03	2315	9.42	2857	11.62	2759	11.22	2645	10.76	24589	100	24053
Alamia El-Azhar	4799	100	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4799	100	3008
Filming	—	—	155	24.37	205	32.23	75	11.79	—	—	111	17.45	52	8.18	38	5.98	636	100	620
Arabic Music	437	54.02	18	2.22	148	18.29	118	14.59	26	3.21	19	2.35	24	2.97	19	2.35	809	100	747
Musical Education	492	32.09	350	22.83	274	17.87	320	14.35	39	2.55	49	3.20	53	3.46	56	3.65	1533	100	1417

* Source: Egyptian General Agency for Mobilization and Statistics

Table 1.1 (Cont'd)

No. and percentage / Faculty/ Institution	BY 1961		1962-1966		1967-1971		1972-1976		1977		1978		1979		1980		BY 1980		No of Alive by 1980
	No.	%	No	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	
Concervatoire	—	—	30	20,55	37	25,34	41	28,08	10	6,85	11	7,53	10	6,85	7	4,80	146	100	143
Ballet	—	—	5	7,58	26	39,39	19	28,79	1	1,51	6	9,09	3	4,55	6	9,09	66	100	63
American Univ.	1401	37,37	288	7,68	505	13,47	832	22,19	198	5,28	165	4,40	185	4,93	175	4,67	3749	100	3462
Engineering & Technology	12595	11,93	10675	10,11	20744	19,65	28238	26,75	7263	6,88	7851	7,44	8720	8,26	9486	8,98	105572	100	99322
Industrial	121	100	—	—	—	—	—	—	—	—	—	—	—	—	—	—	121	100	104
Technology /Asuan	—	—	—	—	—	—	73	25,26	132	45,67	4	1,38	45	15,58	35	12,11	289	100	285
Applied Engineering	1230	100	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1203	100	748
Art & Industries	6084	100	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6084	100	3786
Feni Arts (Lionardo Davinshi)	1013	10,89	1030	11.07	1349	14,50	2304	24,76	606	6,51	998	10,73	1023	10,99	982	10,55	9305	100	8698
Medicine	10425	17,25	4112	6.80	9082	15,03	16784	27,77	4202	6,95	4736	7,84	5303	8,78	5792	9,58	60436	100	56024
Pharmocology	2226	13,67	1263	7,76	3008	18,47	4603	28,27	1050	6,45	1234	7,58	1447	8,89	1401	8,91	16282	100	15715
Dintestry	797	10,27	606	7,81	1370	17,65	2130	27,45	578	7,45	657	8,47	779	10,04	843	10,86	7760	100	7418
Nursing	47	2,39	170	8,88	296	15,02	680	34,52	207	10,51	219	11,12	174	8,83	172	8,73	1970	100	1936
Physio-therapy	—	—	22	1,98	118	10,62	371	23,40	162	14,58	154	13,86	125	11,25	159	14,31	1111	100	1098
Veterinary Medcine	1290	13,01	702	7,08	1434	14,46	3401	34,29	673	6,79	704	7,10	835	8,42	878	8,85	9917	100	9211
Agriculture	11274	12,15	10698	11,53	16860	18,17	24717	26,63	6478	6,98	8972	9,67	7043	7,59	6762	7,28	92804	100	87653
Technicians /Shubra	—	—	125	6,62	636	33,71	1126	59,62	—	—	—	—	—	—	—	—	1887	100	1832
Applied Arts	2486	31,70	1526	19,46	1284	16,37	12,87	16,41	336	4,28	352	4,49	238	3,03	334	4,26	7843	100	6994
Agricultural Extention Cooperation	—	—	—	—	511	4,04	7993	63,12	981	7,79	1085	8,57	910	7,19	1177	9,29	12663	100	12656
Cotton Sciences	—	—	2229	47,68	957	20,47	569	12,17	204	4,36	252	5,40	202	4,32	262	5,60	4675	100	4524
Science	5700	16,07	5529	15,58	6961	19,62	7281	20,52	2291	6,46	2281	6,46	2444	6,89	2981	8,40	35478	100	33655
Womens College Ain Shams	1953	12,80	1695	11,11	2323	15,23	4695	30,78	1289	8,45	1309	8,58	1001	6,56	990	6,49	15255	100	14567
Islamic Womem's College	—	—	116	1,52	749	9,82	2552	33,47	1049	13,76	945	12,40	1007	13,21	1206	15,82	7624	100	7546

Table 1.1 (Cont'd)

No. and percentage / Faculty/ Institution	BY 1961		1962-1966		1967-1971		1972-1976		1977		1978		1979		1980		BY 1980		No of Alive by 1980
	No.	%	No	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	
Home Economics	1882	32.13	878	14.99	807	13.77	1226	20.93	249	4.25	273	4.66	290	4.95	253	4.32	5858	100	5599
Commerce	21003	11.66	18400	10.23	26452	14.68	42725	23.72	15314	8.50	8157	10.08	18572	10.31	19484	10.83	180107	100	170381
Economics & Pol. Sci.	—	—	548	11.88	1096	23.77	1261	27.35	413	8.96	430	9.33	426	9.24	437	9.47	4611	100	4525
Post	—	—	—	—	263	24.88	794	75.12	—	—	—	—	—	—	—	—	1058	100	1032
Cooperation and Administration	—	—	—	—	1004	4.24	14575	53.13	1618	6.84	2115	8.93	2544	10.75	3812	16.13	23668	100	22175
Tourism and Hotels	—	—	—	—	—	—	309	54.60	71	12.54	62	10.95	60	10.60	64	11.31	566	100	562
T O T A L	157621	16.23	98079	10.16	144684	14.99	245916	25.48	70945	7.35	79340	8.22	82249	8.52	86335	8.95	960169	100	902155

Table 1.2

Number of those with graduate degrees obtained from Egyptian and foreign Universities

(First graduating group- Jan. 82)

Serial Number	GRADE DEGREE / FACULTY/INSTITUTE	DIPLOMA	M A M Sc	Ph.D	TOTAL	Percentage % to total
1	Faculties of Engeneering	3485	2154	2232	7871	8,58
2	Faculties of Fine Arts (Architecture)	10	5	8	23	,03
3	Faculties of Fine Arts	80	83	82	245	,27
4	Faculty of applied Art	72	127	47	246	,27
5	Schools of Arts and Industries	—	2	16	18	,02
6	Higher school of applied Engeneering	3	2	9	14	,02
7	Higher Institutes of Industry	11	58	42	111	,12
8	Faculties of Engeneering and Technology	9	4	—	13	,01
9	Faculty of Military Technology	69	31	—	100	,11
10	Faculties of Medicine	14904	1101	2766	18771	20,46
11	Faculties of Dentistry	933	137	210	1280	1,39
12	Faculty of Phsio-Threapy	1	65	2	68	,07
13	Higher Institutes of Nursing	29	95	36	16	,17
14	Faculties of Veterinaryies Medicine	528	445	541	1514	1,65
15	Faculties of Pharmacy	790	377	468	1635	1,78
16	Faculties of Agriculture	2682	3453	2690	8825	9,62
17	Higher Agriculture Institues	80	15	67	162	,18

* Source: Egyptian general agency for Mobilization and Statistics .

Table 1.2 (Cont'd)

Serial Number	GRADE DEGREE FACULTY/INSTITUTE	DIPLOMA	M A M Sc	Ph.D	TOTAL	Percentage % to total
18	Faculty fo Cotton Sciences	2	—	1	3	,—
19	Higher Institute of Agriculture Cooperation	3	—	—	3	,—
20	Faculties of Science	1855	2649	3155	7659	8,35
21	Faculties of Commerce	8309	925	557	9791	10,67
22	Higher Commercial Institutes	168	47	12	227	,25
23	Compplementary Commercial Studies	1	3	2	6	,01
24	Higher Institute for cooperative and Administrative Studies	225	—	—	—	,—
25	Higher Institute for Administrative and Secretarial Studies	—	1	—	1	,—
26	Faculty of Economics and Political Science	355	97	80	532	,58
27	Post Faculty	10	6	—	16	,02
28	Faculty of Art	4055	1398	1389	6842	7,46
29	Mass Communication	18	13	4	35	,04
30	Antiquities	34	8	2	44	,05
31	Dar El Anlum	345	183	208	738	,80
32	Faculty of Languages	75	17	39	131	,14
33	Women's Faculty (Ain Shams University)	661	292	106	1059	1,15
34	Faculty of Education	10357	168	178	10703	11,67
35	Higher Teachers' College	2	15	37	54	,06
36	Institute of Primary Education Teachers	—	6	9	15	,02
37	Faculties of Law	7511	31	641	8183	8,92

Table 1.2 (Cont'd)

Serial Number	GRADE DEGREE FACULTY/INSTITUTE	DIPLOMA	M A M Sc	Ph.D	TOTAL	Percentage % to total
38	Police Faculty	476	17	21	514	,56
39	Old El-Azhar "Al-Azhar Mosque"	—	1	80	81	,09
40	Faculties of legislation	50	133	153	366	,37
41	Faculty of Teology	196	69	228	493	,54
42	Faculty of Arab Studies	620	317	152	1089	1,19
43	Faculty of Islamic and Arab Studies	29	3	—	32	,03
44	Islamic Faculty for Women	30	82	10	122	,13
45	Faculty of Languages and Translation	5	—	—	5	,—
46	Faculty of Institutes of Social Service	212	128	26	366	,40
47	Faculty of Home Economics	56	61	25	142	,15
48	Faculties of Physical Education	263	380	165	808	,88
49	Faculty of Technical Education	79	71	40	190	,20
50	Faculty of Musical Education	12	42	9	63	,07
51	Higher Institute of Arab Music	2	—	6	8	,01
52	Higher Institute for Filming	4	2	9	15	,02
53	Higher Institute for Theatrical Arts	4	1	5	10	,01
54	Higher Institute for Ballet	—	—	3	3	,—
55	American University	—	111	8	119	,13
56	Faculty of Tourism and Hotels	1	2	—	3	,—
	T O T A L	59743	15433	16576	91752	100,000
	PERCENTAGE TO TOTAL	65,11	16,82	18,07	100,000	

THE RESEARCH ENVIRONMENT

The research process requires a combination of three factors, human skill, research institutions which encompass laboratory facilities and training and finally appropriated funds to undertake such research. In the following we will present a brief review of Egyptian human resources, research centres and institutions and local funds allocated to research.

1.1 Human Resources

Egypt is a country rich in its human resources. University education is an aspiration for most of the population. This is the case despite the discrepency in the salary scales between university graduates and those of skilled and unskilled labor. The majority of these graduates are employed in the public sector. They usually have to wait for a period of about 2-3 years before they are employed and their starting salary is about $ 50 monthly. Unskilled labor average about $ 4-7 daily or an average of $ 100 monthly. Skilled labor wages are as a minimum about $ 10 daily or a minimum of about $ 250 monthly. Despite this situation university education is an aspiration for many; thus in Egypt we have a large human base which can be utilized in the research process. Table 1.1 presents the number of university graduates in Egypt during the period 1961-1980 and the number of those alive by 1980. The table reveals the immense number of university graduates in a developing country like Egypt. Such graduates represent about 2% of the population which is a high percentage for a developing country.

Graduate education in Egypt is also an aspiration for a number of Egyptians. Table 1.2 presents the number of those with graduate degrees until January 1982 whether such degrees were obtained from Egypt or from abroad.(1) The number of those with graduate degrees is relatively high for a developing country like Egypt (about 2% of the population). We find that the largest percentage of those with graduate degrees are concentrated in the fields of medicine (20.46%), education (11.67%), commerce (10.67%),

.../4

agriculture (9.62%), law (8.92%), engineering (8.58%), science (8.35%) and arts (7.46%). These eight fields encompass about 86% of the total holders of graduate degrees in Egypt until January 1982.

The previous figures show that Egypt is very rich in terms of human resources required to undertake research. However, this resource is not fully utilized due to the lack of funds.

1.2 Egyptian Research Institutions:

There are thirteen universities in Egypt. Table 1.3 presents names of these universities and their dates of establishment. Note that during the nineteen seventies there was a tremendous expansion in the number of universities in Egypt. Seven of the thirteen universities (more than 50%) were established during this period. Universities in Egypt encompass one of the country's most significant reserves of human resources. There are approximately 12 thousand faculty member 15 thousand research assistants and 50 thousand graduate students.(1) Besides the Faculties which undertake teaching and research responsibilities there are 14 specialized research centres affiliated with the universities in Egypt(2).

Besides the faculties and research centers affiliated with the universities, there is a large number of research centers and Institutions affiliated with different ministries and agencies in Egypt. There are 119 such centres and Institutions.(3)

1.3 Local Funding:

Despite the presence of Egyptian human resources and research institutions, these resources are not fully utilized due to the lack of suffiecient funds directed to research in Egypt in view of Egypt's economic problems. For example annual appropriations for research at Cairo university during the period under study were less than $ 250 thousand per year, officials indicated that such a figure is at times not devoted totally to research, but a portion of it is diverted to other university activities.

.../5

TABLE 1.3
LIST OF UNIVERSITIES IN
E G Y P T
****

NAME	DATE OF ESTABLISHMENT
El Azhar University	1872*
Cairo University	1908
American University in Cairo	1919
Alexandria University	1942
Ain Shams University	1950
Asuit University	1957
Tanta University	1972
El Mansura University	1972
El Zakazig University	1974
Helwan University	1975
Kena University	1976
El Menoufia University	1976
Suez Canal University	1976

* Date of legislation initiating El Alamia degree

Low funds accorded to research have affected the efficiency of research institutions in Egypt. In a field study on Egypt, Clark et al[1] found that the research equipment in research centers and universities was a serious problem in undertaking research and development activities in Egypt. Most of the observations reported by Clark et al concerned the National Research Centre although some "spot" studies were made at some universities and institutes. At the National Research Centre, except for the metals department, equipment was of pre 1964. The equipment generally was in working condition but at a rather low level of efficiency. Many laboratories lacked items which are normally considered essential. At the chemistry department, Cairo university, considerable modernization was required. For example, there was no equipment in the polymer chemistry section. The department of chemical engineering at Alexandria university also lacked pilot plant and modern equipment. The Petroleum Institute needed an engine-testing station and pilot plant facilties.

It is within this context that external funds for research are important if Egypt is to undertake the necessary research for development. Such funds would help utilize the human resources and numerous research centers in order to undertake the required research. In the following section we will outline the amounts of external funds devoted to research in Egypt and their areas of concentration during the period 1975-1982.

2. EXTERNAL FUNDING
****

This section deals with the amount of external funds devoted to research in Egypt and their areas of concentration during the period 1975-1982. However, before dealing with such funds it is important to point to some problems which were encountered in the data gathering process.

2.1 Problems in Data Collection:

There are two problems in this regards one relates to the setting during which the interviews were undertaken and the second relates to the comprehensivenes of the data.

2.1.1 The Setting:

The setting during the period which the interviews for these paper were conducted affected the readiness of some donors to be forthcoming in the information they were ready to provide. Some donors were on the defensive and quite cautious in revealing their personal opinions. During the period October-December 1982 El-Ahram El-Ektisadi[1] (the Egyptian Economist) initiated a series of articles dealing with joint research projects between Egyptians and foreigners, particularly the USAID. These projects were accussed of representing some form of espionage. Some of the articles mentioned that donors were supporting research in Egypt in order to acquire information that would aid them in the manipulation of the Egyptian decision- making process.

2.1.2. The Comprehensivenes of the data:

The exact figures on external funds directed towards research in Egypt are difficult to obtain.While it would appear that such annual figures are readily available, the field work undertaken in this study shows that the available records on funds directed towards research in Egypt are not comprehensive. Such incomprehensiveness in due to three main reasons. First there is the fact that some donors provide funds for research to the Middle East region or Africa without specification of the amount directed to Egypt. Thus a segment of the funds actually recieved by Egypt are not reported in the figures regarding it. While

.../7

some donors did give an estimated figure of how much of such funds were directed to Egypt, they warned that their estimates were not precise. Such estimates are not reported in this study.

Secondly some donors indicated that the action projects they fund do include a segment for research as related to the particular project. However, they indicated that it was difficult to provide the exact figures for all such research since they were not readily available. Figures on research undertaken within an action project are not reported in this study.

Finally some research projects are undertaken directly between Egyptian individual researchers and foreign universities without being reported to the Egyptian government nor to the donors' government. While the donors indicated that they believed that the sum of these funds are not usually great, their absence does affect the comprehensivenes of the data.

2.2 External Funding: Amounts and Areas of Concentration:

In analyzing external funds appropriated to research in Egypt we will first outline the categories used in studying areas of concentration. We will then deal separately with US funds since they by far exceed the funds appropriated by all other donors. This will be followed by a study of funding by non-US donors. Finally we will outline areas which need further funds.

2.2.1. Categories used in the study:

We differentiate here between 8 major categories:

- Agricultural research: this includes research dealing with land reclamation and rehabilitation, crops, forestry, fisheries, animals, and agricultural management and data process.
- Education related research: this category includes funds for research dealing with the education system, training programs in Egypt, the establishing and supporting of training and research institutes in Egypt, supporting seminares, conferences and publications in Egypt and supporting library facilities.

.../8

- Industrial research: this includes research relating to metals, minerals and chemical industry, spinning and weaving, energy, equipment industry, basic industry, automotive industry and food and plastic industries.
- Health research: we include in this category research on diseases, health services, handicaps and birth control.
- Research on infrastructure: this includes research on communication, transportation, housing, water and sewage.
- Environmental research: we include in this category research concerning land, water or air conservation.
- Social science research: this include research relating to urban and rural problems, population, management and administration, foreign policy, women, human rights and economics.
- Research on arts and culture: this category includes funds directed to cultural and artistic issues like festivals, museums...etc.

2.2.2. Funding by the US:

Most projects funded by the US do include an appropriation for research. However, it was not feasible to obtain data regarding funds directed towards research within each individual project(1). Our analysis here focuses only on those projects which we regard as mainly concerned with research. Table 2.1 lists thirteen USAID projects whose main area of concentration is research(2). The total obligations of funds directed to these projects by 1982 amounted to $ 198,367,000. These projects show a clear tendency on the part of the US to devote a high priority to research related to agriculture and agricultural education. Eight of the thirteen projects focus only on agriculture and agricultural education. Funds obligated to these projects amount to $ 118, 867,000 or 60% of the total funds obligated.

.../9

TABLE 2.1
MAJOR USAID RESEARCH PROJECTS
IN EGYPT 1975-1982*
****

Project Title	FY initiated	Funds obligated until end of 1982 in million US$
- Applied science and Technology Research	1977	24.4
- Development Planning studies	1978	15.8
- Water use and management	1976	13
- Agriculture Development systems	1977	12.9
- Poultry Development	1977	12.5
- Major cereals	1979	47
- Small scale agricultural Activities	1979	1.7
- Rice research center and Training	1977	21.767
- Agriculture management development	1980	5
- Agricultural Data collection & analysis	1980	5
- Rural Health Delivery system	1976	7.8
- Integrated Social Work Training Centres	1977	4
- University Linkage Project	1980	27.5
T O T A L.....		198.367

* Source: Status Report of activities Financed by US Economic assistance to Egypt for Fiscal years 1975-1983 (as of December 1982)

Concern with the aforementioned categories can be explained in view of the importance of agricultural research in developing countries in general and the problems facing Egypt in particular. The transfer of technology from abroad in the agricultural sector is difficult. This is due to the fact that agriculture production is determined by the climate, the soil, and the structure of land holding and terrian. All of these factors are specific for each country. Thus it is usually difficult to improve yields' quality by simply borrowing seeds and techniques from abroad. Thus all developing countries require a strong emphasis on agricultural research(1).

Concern with agriculturally related research can also be explained in view of the specific problems facing Egypt. Local agricultural production fails significantly in meeting local needs. Agricultural imports valued about L.E. 372 million in 1980 or 17% of the total imports for that year. The average annual deficit in the balance of trade for agricultural commodetes is about L.E. 107 million annually. Such a situation is due to several problems facing agriculture in Egypt, namely:

- Urban encroachment on agricultural land
- Excavation of soil fertility
- Land tenure fragmentation
- The need for crop intensification and agricultural mechanization
- Poor genetic resources in cattle and poultry
- Shortage of animal feed
- Increase of waste in agriculture industry

Such problems have affected agricultural production which in turn had negative effects on the health of the population. For example a recent report on food survey in Egypt (undertaken by the health ministry) shows that 40% of Egyptian children suffer from a deficiency in iron and 22% of them from protien deficiency(2). It is within this context that research related to agriculture is of great importance for Egyptian development.

.../10

Thus, in addition to the eight projects focusing on agriculture and agricultural education, agricultural research is also undertaken within three other research projects funded by the USAID. Namely, the applied science and technology research, the development planning studies and the university Linkages project. In the following we will present a brief discription of the areas of concentration within these three projects.

2.2.2.1 Applied science and technology research:

This project was initiated in US fiscal year 1977 with total obligations until 1982 of $ 24.4 million. Its main aim is to provide support for the Egyptian Academy for Scientific Research and Technology to improve the effectiveness of scientific and technological resources in applied research directed toward national development and end users. The project has been concerned with R & D management and supporting the organizational structure for applied research in Egypt.

The first emphasis is on means of achieving coordination between different institutions engaged in the research process. The second focuses on creating a national information network and supporting institutions concerned with measurement, calibration, standardization and quality control on the national level.

In addition to the above mentioned two areas, nine major projects have been undertaken using the applied science and technology research funds. Table 2.2 presents a listing of these projects. The first three projects are multi-desciplinary and multi-institutional with a national program. The remaining six projects relate to a well defined problem that faces a particular sector.

If we look at the areas of concentration for these projects we will find that three of them are mainly concerned with agriculture while six are mainly concerned with industry.

.../11

TABLE 2.2
LISTING OF NINE PROJECTS UNDER
THE APPLIED SCIENCE AND TECHNOLOGY
RESEARCH
****

1- Better Food
2- Biogas for the Development of Rural Areas
3- Crops for Arid and Semi Arid Areas
4- Concentration of Raw Phosphate
5- Woolwax
6- Corrosion of Oil Refinaries
7- Bentonites
8- Fisheries in the Red Sea
9- Pharmaceuticals

Table 2.3 presents areas of concentration in the three agriculturally related projects. Research here is undertaken in relation to arid and semi arid land, crop, land reclamation, animals, fisheries and poultry.

Table 2.4 presents areas of concentration for the six industrially related projects in addition to the food industry which is undertaken within the better food project.

In addition to the agricultural and industrial components of these nine projects a few of them had some social, health and environmental components. For example the better food project had both social and health components. The project studied the social factors affecting agriculture production in the two villages were the research is carried out (Kafr El-Kadra and Omar Makram). The project also studied effects of malnutrition. The biogas project also had an environmental component; it studied the pollution assiciated with this type of gas. The research programs under the applied science and technology project include an educational component. Training (both inside and outside Egypt) constituted 15.4% of funds spent during the first stage of the project (ended in 1980) and 13.9% of the budget of the second stage (1).

2.2.2.2 Development Planning studies:

This project was initiated in US FY 1978 with total obligation until 1982 of $ 15.8 million. The projects main aim is to mobilize the Egyptian academic resources for applied research on related development problems and provide assistance to government technical and planning ministries on project design and implementation.

The project established a permanent institution in association with Cairo university, the Development Research and Technological Planning Centre (DRTPC). It was formally chartered in March 1979. The Centre undertakes research funded by Egyptian sponsors,(2) the Cairo university/MIT program and international institutions.(3)

.../12

TABLE 2.3
AREAS OF CONCENTRATION WITHIN THE
AGRICULTURALLY RELATED PROJECTS UNDER THE
APPLIED SCIENCE AND TECHNOLOGY RESEARCH*
****

CATEGORY	SUBCATEGORY
Arid and semi arid crops	Jojoba-Gouili-Buffalo gourd-mung beans-Tabari beans-lima beans-black eye beans-pegion beans-ephorbia-gaugola
Improvement of crops yields	wheat-maize-peanuts-green forage-faba beans, barely
Improvement of vegetable yields	onion-potatoes-tomatoes- black eye beans
Improvement of fruit yields	citrus fruits

* For a detailed description of there projects and their accomplishments see the Academy of Science and Technology, the Applied Science and Technology project,

First report : December 1981
Second report : December 1982
Third report : March 1983
Fourth report : September 1983

TABLE 2.3 (CONT'D)
****

CATEGORY	SUBCATEGORY
Animals	silk worm-honey bee-poultry-animal diseases-animal sterilization
Fisheries	Floating Fish Coral Fish Shell Fish
Land Reclamation	Fertilizers*

* Research on fertilizers is also undertaken within the biogas project

TABLE 2.4
AREAS OF CONCENTRATION WITHIN INDUSTRIALLY RELATED PROJECTS UNDER THE APPLIED SCIENCE AND TECHNOLOGY RESEARCH*
****

CATEGORY	SUBCATEGORY
Energy	Biogas
Mineral, metals and chemicals	Courosion of oil refeneries Phosphate, bintonites, pharmaceuticals :
Spinning and Weaving	Wool wax
Food Industry**	Subramine, nutritious mixes for children -oilseed processing diary products-preparation of meals for school children- soya beans- nutritiuies drinks

* For a detailed description of these projects and their accomplishments see Ibid.

** Research on Food industry is undertaken within the better food project.

Table 2.5 presents areas of concentration for projects sponsored by Cairo university/MIT program. Such projects included research on agriculture, industry, health, social sciences, environments, infrastructure.

In additon to these projects a new program "The new initiatives program" started at the DRTPC in 1981. This program includes doctoral and post doctoral research fellowships and internship for qualifying Egyptian researchers. The funds are designed to provide research opportunities to help achieve Egypt's developmental goals. Table 2.6 presents areas of concentration for internships and doctoral and post doctoral fellowships.

In addition to the research mentioned above the DRTPC has also focused on educational activities. These include short courses and workshops which support the training of personnel at universities and ministries, establishing a library at the center and a computer system capable of supporting 20-30 simultanious users(1).

2.2.2.3 The University linkage project:

This project was initiated in US FY 1980 with total obligations until 1982 of $27.5 million. Its main aim is to support a plan to mobilize, enhance and supplement a selected portion of Egyptian University faculty by directing their efforts under such projects in accordance with Egyptian development needs. Table 2.7 presents the distribution of funds under the university linkages project according to areas of concentration. Figures in the table represent funds awarded according to the estimated duration of the project. The figures reveal that research related to agriculture, health and industry are priority areas within the university linkage project, they received 75% of the funds. Environment and education recieved 19% of the funds and social sciences and infrastructure recieved only 6% of the funds. Research on art and culture is not a point of focus within the university linkage project.

.../13

TABLE 2.5
AREAS OF CONCENTRATION FOR PROJECTS
SPONSORED BY THE CAIRO UNIVERSITY/
MIT PROGRAM*
UNDER THE DEVELOPMENTAL PLANNING STUDIES*
****

CATEGORY	SUBCATEGORY
Agriculture	Land Reclamation (ground water studies, nile inflows, water resource planning)
Industry	Energy (electric power system, petroleum, qattara depression project, plastics industry, automative industry, metal and mineral (energetus in metal industries, gypsum qarrying**
Health	health care delivery systems
Environment	studies for the qattara depression project.

* For a detailed description and accomplishments of these projects see
DRTPC, proceedings of January 1982, symposuim and Technical conference (Cairo)
DRTPC, annual DRTPC technical conference, Jan. 26 and 27, 1983 (Cairo)

** Latter is pre-feasibility study.

TABLE 2.5 (CONT'D)
****

CATEGORY	SUBCATEGORY
Social sciences	administration management (government incentives for small business)
Infrastructure	Transportation (modal transportation, urban transportation, road construction) Housing & construction (urban planning guidelines) communications (rural communication needs)

TABLE 2.6
AREAS OF CONCENTRATION FOR INTERNSHIPS
DOCTORAL AND POST DOCTORAL FELLOWSHIPS
UNDER THE DEVELOPMENT PLANNING STUDIES*
****

CATEGORY	SUBCATEGORY
Agriculture	Land reclamation (water drainage, water resources.
Industry	Metals, minerals and chemicals (Baharia Barites, cables, minerals converter practice, fermentation by products, steel, alumenium, Ion Beans, Energy (oil fields, solar and wind energy**, coal, storage, oil and gas accumulation)
Environment	Air quality, pollution from high Voltage insulators, plume despersion coastal protection, wastes.
Infrastructure	Housing and construction (concret building, mud brick) Transportation (railway braking

* Source:
Development research and technologyical planning centre, newsletter.

** One of the studies in this field was a feasibility and system design study

TABLE 2.6 (CONT'D)
****

CATEGORY	SUBCATEGORY
Social Sciences	Economics (private investment, inflation, technology transfer) management and administration (information management system, local government, ellects of variability in time performance)
Health	Disease, (Bilharzia)
Miseellaneous	- Pattern recognition techniques - Analysis of cullular structural Quays - Analysis of alpha-betr - Automatic arabic recognition - Spectral response of rules structure - Gcology of area around wadi Mubarak - Gcological studies in atud area

TABLE 2.7
UNIVERSITY LENKAGE PROJECT
DISTRIBUTION OF FUNDS ACCORDING TO AREAS OF
CONCENTRATION 1982-1983* (IN US DOLLARS)
****

YEAR	AGRICULTURE	INDUSTRY	HEALTH	SOCIAL S	ENVIRONMENT	EDUCATION	INFRAST.	ARTS	TOTAL
1982	1,275,000	850,000	100,000	--	200,000	--	---	--	2,425,000
1983	958,343	1,431,744	2,466,856	281,857	722,571	888,130	251,357	--	7,000,858
TOTAL	2,233,343 (24%)	2,281,744 (24%)	2,566,856 (27%)	281,857 (3%)	922,571 (10%)	888,130 (9%)	251,357 (3%)	--	9,425,858 (100%)

* Source: compiled from Mostafa M. Kamel, et al, op.cit.

** Figures were not given for one of the projects on Land Reclamation.

*** It was indicated that one of the projects in the energy category is a feasibility study.

Table 2.8 presents the distribution of funds devoted to health research by the university linkage project. The data show that the majority of the funds (88%) are directed to disease. Particular emphasis has been devoted to schistosomiasis, viral hepatitis, liver, hyperalimentation, tuberculosis, hepatic amaebiasis and thryoid gland swellings. The low priority accorded to birth control is probably related to the fact that the USAID funds a separate family planning project whose total obligations from 1977 to 1982 was $ 67.6 million.

Table 2.9 presents the distribution of funds devoted to agricultural research by the university linkages project. A significant portion of the funds within this category are devoted to research on crops (61%). Research in this subcategory related to lentils, onions, garlic, banana, green fodder, corn, medical and aromatic plants, forage crop, figs and peanuts. The animal subcategory included research on goats, rabbits, animal wastes and the utilization of cheese whey for animal feed. Land reclamation research related to irrigation and drainage. Fisheries and forestry are not a point of focus for the project.

Table 2.10 presents the distribution of funds devoted to Industrial research by the university linkage project. Energy is the subcategory were the major funds on industrial research are concentrated (57%). Research in this regards is devoted to both the economic use of present energy resources (ex. rationalization of fuel combustion in boilers and industrial furnace) and to the development of new sources of energy (ex. integration of wind and solar resources into a renewable energy policy). Research related to minerals and metals industry included research on aluminum, phosphate, iron and steel. Research on equipment and appliances related to agricultural equipment, transformers and optical communication. Spinning and weaving, basic industry and food insustry occupy relatively low priorities within the university linkage project.

.../14

TABLE 2.8
UNIVERSITY LINKAGES PROJECT
DISTRIBUTION OF FUNDS DIRECTED TO HEALTH
RESEARCH 1982-1983* (in US dollars)
****

YEAR	HANDICAPPED	BIRTH CONTROL	DISEASE	TOTAL
1982	100,000	-----	----	100,000
1983	---	200,000	2,266,856	2,466,856
TOTAL	100,000 (4%)	200,000 (8%)	2,266,856 (88%)	2,566,856 (100%)

* Source: Ibid

TABLE 2.9
UNIVERSITY LINKAGES PROJECT
DISTRIBUTION OF FUNDS DIRECTED TO
AGRICULTURAL RESEARCH 1982-1983* (IN US DOLLARS)
****

YEAR	LAND RECLAMATION**	ANIMALS	CROPS	TOTAL
1982	---	475,000	800,000	1,275,000
1983	248,343	150,000	560,000	958,343
TOTAL	248,343 (11%)	625,000 (28%)	1,360,000 (61%)	2,233,343 (100%)

* Source: Ibid

** No figures were provided for one of the projects under this category

TABLE 2.10
UNIVERSITY LINKAGE PROJECT
DISTRIBUTION OF FUNDS DIRECTED TO
INDUSTRIAL RESEARCH 1982-1983* (IN US DOLLARS)
****

YEAR	MINERAL METALS	SPINNING WEAVING	EQUIP. APPL.	ENERGY**	BASIC INDUS.	FOOD INDUST.	TOTAL
1982	100,000	---	--	650,000	100,000	--	850,000
1983	382,815	57,143	286,286	645,500	---	60,000	1,431,744
TOTAL	482,815 (21%)	57,143 (3%)	286,286 (12%)	1,295,500 (57%)	100,000 (4%)	60,000 (3%)	2,281,744 (100%)

* Source: Ibid

** It was indicated that one of the studies under this subcategory is a feasibility study.

The environmental research undertaken by the university linkage project focused on air, land and water conservation. Water conservation was the main focus within this subcategory. Research here included conserving water from tanker pollution and industrial wastes and coastal restoration. Air conservation research related to pollution resulting from cars and industrial furnaces. Finally land conservation research related to the establishment of a wildlife in arid eco-systems.

The largest funds within the education category were devoted to developing science education for the stage of basic education. Next in terms of funds came the Egyptian American project in population education (reaching out) and developing curricula at education faculties for preparation of English teachers. Other subcategories in the educationally related research include educational research and revitalzation, social work and educational needs of the Suez Canal zone.

Research related to infrastructure and social sciences are the last priority areas for the university linkage project. Research in the first category related to housing, telecommunication and water. In the social science category research related mainly to management and administration, urban and rural problems.

Before concluding our presentation of funding by the US a few remarkes are note worthy:

(1) The main focus of US funding has been directed to agriculture and research in education Eight of the thirteen projects presented in this paper related to these categories. Furthermore research in agriculture is undertaken in three other projects namely the applied science and technology research, the development planning studies and the university linkages project. Industry, health and environmental research acquire secondary priority, while social sciences and infrastructure acquired a relatively low priority. The relatively

.../15

power funds directed to industry and infrastructure research may be partly explained by the US funding of feasibility studies in these areas. By feasibility studies we refer to studies concerned with the feasibility of establishing a particular project taking into consideration all relevant factors including commercial profitability and national interest. For example the US initiated the technical and feasibility studies project in FY 1975 with total obligation until 1982 of $ 64.4 million. Feasibility studies in the areas of industry and infrastructure were a major point of focus in this project.

(b) Figures appropriated for the thirteen projects mentioned in this paper include a portion for training in the US. While we do not include training abroad in our study of the external funding for research in Egypt, we were not able to obtain the figures regarding such training in order to deduct them from the total appropriations.

(c) There is a major emphasis in the US projects on institution building. For example the Rice Research Center and training project focuses on establishing a national Rice Institute at the Sakka Research Station. The Integrated Social Work Training Centers project established a center designed to train social workers in Tanta. In the applied science and technology project there has been a major focus on equipment. During the first stage of the project 55.6% of the funds during this stage were devoted to equipment. During the second stage 57% of the funds were obligated to equipment and supplies.

(d) US projects represent joint enterprises between Egyptian and American counterparts. For example the National Academy of Science participates in the applied science and technology research, the Massachussetts Institute of Technology in the Development Planning studies and several US universities in the university linkages project.

.../16

2.2.3 Funding by non-US donors:

In analyzing the appropriated funds by non-US donors to research in Egypt we will focus on two main points. We will first identify areas of concentration for these funds this will be followed by an identification of the donors of each category and their style of funding.

2.2.3.1 Areas of Concentration:(1)

Table 2.11 presents the distribution of funds appropriated by non US donors to research in Egypt during the period 1975-1982(1). The figures reveal that 87% of the total funds were appropriated to educational and agricultural research. Within the education category major funds were appropriated to the subcategories of agriculture, health and science and to teaching and the educational system (see table 2.12). High appropriations to educational research were mainly due to the appropriation of funds for the establishment of training and research institutions and for supporting the existing ones. Namely in 1976 Germany appropriated funds for the establishment of the Theodore Research Institute for Bilharzia in Cairo and for supporting the equipment and laboratories of the national Research Centre. IDRC also appropriated funds in 1977 for supporting the equipment of the National Research Centre. In 1980-1981 Britain appropriated funds for the establishment of a new training school for technical and craft teachers at Zawia El-Hamra. Funds appropriated to these 4 projects represent 91% of the funds appropriated to educational research. In other words institution building accounts for the major portion of funds directed to the education category.

Agricultural research received the next highest appropriations by non-US donors (see table 2.13 for the distribution of funds appropriated to agricultural research). The largest funds within this category were devoted to research on crops (61%). Here research related mainly to Faba beans, legumes, oilseeds, summer forage and elephant grass. Research on land reclamation represented 27% of the funds appropriated to agriculture. Research in this regards related to irrigation and fertilizers.

.../17

TABLE 2.11
DISTRIBUTION OF FUNDS APPROPRIATED BY
NON-US DONORS TO RESEARCH IN EGYPT ACCORDING
TO AREAS OF CONCENTRATION 1975-1982 (IN US DOLLARS)*
****

AGRICULTURE	INDUSTRY	HEALTH	SOCIAL SCIENCE	ENVIRONMENT	EDUCATION	ARTS & CULTURE	TOTAL
10,069,487	2,123,030	534,115	772,788	230,010	14,302,383	42,730	28,074,543
(36%)	(7%)	(2%)	(3%)	(.8%)	(51%)	(.2%)	(100%)

* Sources: In the following we will indicate sources for each of the donors: Consultative Group on International Agricultural Research: data given in meeting with executing office in Cairo (ICARDA).

IDRC: compiled from International Development Research Centre, Projects 1970-1981 (Ottawa, 1982).
IDRC, Annual Report 1982/1983 (Ottawa, 1983). Computer print out from IDRC office in Cairo.

Germany: Compiled from Egyptian Ministry of Investment and International cooperation.

Ford Foundation: compiled from The Ford Foundation, Program-actions, Grants, 1979, 1980, 1981, 1982. Data given during interview.

Fredrich Ibert: Data given during interview.

Netherlands: Compiled from Egyptian Ministry for Investment and Inter-national cooperation. Data given during interview

United Kingdom: Compiled from UK aid to Egypt, panphlet given at UK Embassy in Cairo.

TABLE 2.12
DISTRIBUTION OF FUNDS APPROPRIATED BY
NON-US DONORS TO EDUCATIONAL RESEARCH IN EGYPT
1975 - 1982 (IN US DOLLARS)*
****

LIBRARIES	HISTORY ISLAM CULTURE	AGRIC HEALTH SCIENCE	LANGUAGE	TEACHING & EDUC. SYSTEM	SOCIAL SCIENCE	TOTAL
124,005 (.8%)	27,000 (.2%)	9,418,501 (66%)	312,179 (2%)	3,837,521 (27%)	583,177 (4%)	14,302,383 (100%)

* Sources:
IDRC: op.cit.
Germany: Ibid
UK: op.cit
The Ford Foundation: op.cit

TABLE 2.13
DISTRIBUTION OF FUNDS APPROPRIATED
BY NON-US DONORS TO
AGRICULTURAL RESEARCH IN
EGYPT 1975-1982 (IN US DOLLARS)*
****

DATA	LAND RECLAM.	FISHERIES	ANIMALS	CROPS	FORESTRY	TOTAL
266,673 (3%)	2,758,274 (27%)	188.844 (2%)	471,968 (5%)	6,133,364 (61%)	250,364 (2%)	10,069,487 (100%)

* Sources:
Consultative Group on International Agricultural Research op.cit
IDRC .op.cit
The Ford Foundation op.cit
Germany op.cit

Research on animals related to silk worm breeding and animal feed, such research recieved 5% of funds appropriated to agricultural research. Research related to agriculture data came next in terms of appropriated funds. Fisheries and forestry acquired the least funds in this regards.

Research related to industry included research on iron, food preservation, small farm equipment and the development of new sources of energy. The relatively low funds directed to industry and the absence of funds in the infrasturcture category can probably be partly explained in view of the large funds provided by some donors to feasibility studies within there categories. Table 2.14 presents total funds appropriated to infrastructure and industrial feasibility studies by non-US donors in Egypt during the periods 1975-1982.

Social sciences and health recieved only 5% of the total funds appropriate by non-US donors to research in Egypt, while research related to environmental issues and arts and culture received only1% of this total. Social science research included research related to urban and rural problems, population, foreign policy, women, human rights and mangement and administration. Health research related mainly to birth control, rural health and diseases like Bilharzia, oral rehydration and diarrhea. Environmental research related to areas such as festivals, research on arts and culture related mainly to festivals, Islamic and Nubian culture.

2.2.3.2 Sources and style of Funding:

In identifying non-US sources of research funds in Egypt we will outline the major donors[1] within each of the aforementioned categories. The consultative Group on International Agricultural Research[2] (CGIAR) and the International Development Research Centre (IDRC) provided the largest funds for agricultural research. Both contributed to 75% of the total funds appropriated to agricultural research Germany, the Ford Foundation and the Netherlands contributed to the remaining 25%. In the industry category the largest funds were contributed by Germany (60%). This category was also funded by IDRC and the Netherlands.

TABLE 2.14

INFRASTRUCTURE AND INDUSTRUAL FEASIBILITY
STUDIES FUNDED BY NON-US DONORS
1975 -1982 (in US Dollors)*

INFRASTRUCTURE	INDUSTRY	TOTAL
21,733,286	9,433,572	31,166,858

*Source:

- Compiled from data given by the Egyptian Ministry of Investment and International cooperation.
- Figures include both loans and grants.
- Funds were provided by Italy, Denmark, Sweden, Netherlands, Germany, France, The European Economic Community, United Kingdom, Austria, Finland, UNDP, World Bank for Rehabilitation and construction and the Arab Fund for Economic and Social Development.
- Japan did funds feasibility studies in the aforementioned areas, however, no figures were reported by the Ministry of Investment.

In the education category Germany and the UK provided 90% of the funds. The Ford Foundation and IDRC provided the remaining 10%. The Ford Foundation and IDRC appropriated 87% of the funds devoted to social science research. The remaining 13% were contributed by the Netherlands and the German Fredrick Ibert Institute. The Ford Foundation was the main contribution to the environment and art and culture category and the IDRC the main contributor to the health category.

If we look at the style of funding by different donors, we find that donors differ in terms of the size and number of projects they fund. The Ford Foundation and the IDRC tend to fund a relatively large number of projects with relatively small funds allocated for each of them. This is more the case for the Ford Foundation than for IDRC. Other donors like Germany, the United Kingdom and the Consultative Group on International Agricultural Research tend to fund a small number of projects, but where relatively large funds are allocated. Projects funded by the Netherlands and Frederick Ibert are low both in terms of number and size, this is more the case for the latter than the former.

2.2.4 Suggested areas for future research:

The figures outlined in sections 2.2.2 and 2.2.3 reveal that there is a significant focus on agriculture research. Education related research has also been accorded priority. There has been a major focus within this category on institution building. While industrial and infrastructure research has been accorded relatively secondary priority, there has been major funding by both US and non-US donors to feasibility studies in these two areas. The categories of health, environment, social sciences and arts and culture have been accorded relatively low priority. More funds should be directed to these four latter categories.

In the following we will present some suggestions for future research suggested by donors and recepients interviewed in this study.

.../19

Some donors and recipients acknowledged that large funds are directed to agricultural research. However, they believed that some areas needed further research. Three such examples were cited:

A- Cotton: It was believed that cotton has not been accorded sufficient attention in terms of research funds. There are new methods in cotton pest control. Such methods would relieve the government from directing increasing funds to insecticides and would also help in reducing pollution. More research funds need to be directed to such new methods like the integrated pest control.

B- Borers: This is a problem for both Egypt and Sudan. Research funds in this area could be undertaken on a regional basis.

C- North West Coastal Areas: The population in this area is mostly Bedouin and the rain fall is very low. Funds are needed to undertake research with the aim of increasing agricultural crops and animal production. It was indicated that while some research has been undertaken in relation to these areas, it has been mainly theoratical. What is needed here is field research.

Examples of suggested research relating to other categories include:

A- Vocational training: Research is needed to know more about areas where the manpower is available, the branch of skill and the future Egyptian needs in this regards.

B- Side effects of faba beans: Research is needed in order to find a cure for the anaemia that strikes some children as a result of eating faba beans. Research could focus on developing appropriate medicine and on cooking methods to aviod such side effects.

.../20

C- Management and administration: Research is needed on means of coordination between different organizations engaged in different activities in Egypt.

D- Urban and Rural attitude inhibiting development: It has been indicated that such attitudes are an obstacle in the face of development. Research is needed to identify such attitudes and means of overcoming them.

.../21

3. PROBLEMS
****

In this section we will identify the problems encountered in undertaking research in Egypt. Data is based mainly on the donors' and recipients' identification of problems. The main problems are:

- The National security problem
- The absence of an overall research plan
- The availability of Egyptian funds
- The data problem
- The salary scales of Egyptian researchers
- Foreign experts and equipment
- The procedure problem
- The coordination problem
- The continuity problem
- The implementation problem

3.1 The National security problem:

The impact of external funding for research on Egyptian national security has been debated during the past year and a half. In a series of articles published by El-Ektisadi some believed that such externally funded research poses a threat to Egyptian national security. According to them donors obtain detailed information on Egypt through such research(1).

Donors and recipients interviewed believed that such research does not pose a threat to Egyptian national security. Donors indicated that their grants were in response to Egyptian requests. Thus they believed that they were not dealing with issues that could hurt Egyptian nation security. Information from such research could be used as a basis for granting future aid to Egypt. Recipients indicated that the issue of national security is taken into consideration before asking for external support.

.../22

3.2. The absence of an overall research plan:

Research must be planned or else it risks becoming simply a conglomerate of projects the utility of which might be questionable. A research plan is made up of a collection of time phased programs each consisting of an aggregate of program elements. The elements may be further divided into sub elements and consequently sub projects(1).

Some donors indicated that one of the main problems in Egypt was the absence of an overall research plan. The absence of such plan may be attributed to the fact that until the early seventies funds directed towards research were relatively low if compared with funding during 1975-1982. Local funds were low and foreign funds were mainly provided by private donors whose sum did not amount to much. With such low funding the problem of an overall research plan did not seem to be pressing. However, during the period 1975-1982 research funds increased dramatically, but with the absence of an overall research plan Egyptian priorities were not well defined. There were differences of opinion regarding the type of research and its areas of concentration. Opinions differed as to whether priority should be given to scientific or applied research. Some beleived that devoting increasing sums to scientific research involves a loss of resources. By focusing on scientific research already attained abroad, Egypt would not move ahead. Those adopting this opinion believed that what Egypt needs is applied research, i.e. applying some technology developed abroad in Egypt. Others beleived that emphasis should be given to scientific research. Opinions also differed on priority areas of concentration. Some beleived that agricultural research should be given priority since food is a basic necessity for the population. Others beleived that building the industrial capability should be given priority since it would raise the standard of living at large. Differences of opinion also existed in relation to areas of concentration within each field. Within such discussions social science research was not considered relatively important despite the fact that Egypt has survived a unique form of social and political development which needs to be thoroughly studied. So much

.../23

talk went on regarding the priority question but no overall plan was set.

Thus donors were responding mostly to adhoc requests from different Egyptian institutions and agencies. Donors deliberately emphasized that they do not suggest areas for research in Egypt and that initiation comes from the recipients. However, they indicated that their choice between different requests was determined by their area of interest and expertise.

There has been increasing emphasis in the 1980's on developing an overall research plan in Egypt. There has also been an emphasis lately on introducing a legislation to govern means of undertaking externally funded research and the characteristics and educational background of those undertaking such research.

3.3 The availability of Egyptian funds:

As indicated in section 1.3 Egyptian funds allocated to research are rather low. One recipient indicated that some externally funded projects require an Egyptian contribution, if such contribution is not forth coming there is the risk that external funding might come to a hault.

3.4 The Data Problem:

Data is essential if any research is to be undertaken. Donors and recipients indicated that there is a data problem in Egypt. Some pointed to data problems regarding problem identification and formulation while others pointed to data problems in undertaking research once the problem has been formulated.

Recipients indicated that the relationship between the researcher and the user is very weak. Some users have little experience in identifying and formulating problems. Some researchers have had little experience in helping the users formulate such problems. There is then a problem

.../24

of a market research in other words developing a survey of problems existent in a particular sector. Furthermore there is the problem of the users perception on whether the Egyptian researcher can really help in solving such a problem given the low local funds directed to research. For example one recipient indicated that Egyptian researchers find that in visiting any factory when they ask for an identification of problems they are usually given the answer that there is no problem. However, if foreign researchers ask the same question they are given a set of problems.

Some donors indicated that after a problem has been identified sufficient data required for undertaking the research might not be available. Even when such data does exist it is at times difficult to obtain due to Egyptian regulations involved in the provision of data.

3.5 Salary scales of Egyptian Researchers:

One of the problems identified by some donors was the inadequancy of Egyptian salary scales for researchers. With low salries there is a lack of enthusiasm to undertake research. Furthermore, researchers tend to spread themselves over different activities, a matter which delays research.

This problem is also related to the problem of continuity mentioned below. Researchers generally feel reluctant to continue research if not funded and they tend to start other research projects if funds are available for them. While a basic element in research is continuity, the salary system discourages it.

3.6 Foreign experts and equipment:

Donors' contribution to the research process should not be only evaluated in terms of the volume of funding but on how this money is spent. In this regards recipients pointed to two problems, the problem of foreign experts and the problem of equipment purchases. Recipients believed that the participation of foreign experts (except in cases were Egyptian expertise cannot be found) in the research process involves

.../25

redirecting a segment of the funds provided back to the donor. While participation of these experts might be justified from the donors' point of view, Egyptian recipients believed that this involves draining a significant portion of the funds allocated to Egypt. Recipients also believed that some of these experts do not have an Egyptian perspective for some issues nor the feeling for the problem understudy from an Egyptian point of view. Furthermore, recipients believed that the discrepancy in pay between Egypt and foreign experts causes frustration for the Egyptian experts. One recipient believed that too much money is spent on traveling, accommodation and salaries for foreign experts who at times have not undertaken as much work nor have as much expertise as that of the Egyptian experts. He beleived the Egyptians know more about their country than any body else.

Recipients also pointed to the drain in research funds as a result of restrictions on the sources of equipment purchases. For example US regulations require that the equipment necessary for the projects should be bought from the US. One recipient indicated that prices for the same equipment might be lower in some European countries (at times prices in Europe are less than half the prices in the US). The situation leads to a recycling of a significant portion of the funds back to the donor.

3.7 Procedural Problems:

Procedures have at times delayed undertaking research in Egypt. This problem is not only due to Egyptian governmental procedures but also to procedures on the donors' side. On the Egyptian side delays result at times from requesting several approvals before the proposal is even submitted to the donor. Donors believed that all research institutions should attract funding agencies not make it more difficult for them to provide funds.

On the donors' side also it takes time to approve research and provide equipment necessary for a project. For example one recipient believed that the US bureaucracy has been lately moving with increasing caution.

.../26

Equipment might take 2-3 years before arriving in Egypt and at times after the project has already started. Such a situation delays research.

Recipients indicated that there are problems in having to cope with both Egyptian and donor procedures in undertaking a project. Such procedures at times conflict, they believed that the more sectoral the nature of the project the more the regulations and procedures involved and that small projects enjoy more flexibility.

3.8 The coordination problem:

Coordination refers to the process whereby two or more organizations undertake conscious participation in order to achieve some inclusive goal. It is a process whereby organizations, while achieving their own goals and activities, take into consideration the activities of other organizations working in the same or related field. A coordination system is needed in order to:

(a) Insure the efficient use of available sources.
(b) Insure an efficient selection of projects.
(c) Avoid functional gaps and overlaps which reduce efficiency.
(d) To establish an information system that would make an exchange of information and experience among the donors and recipients possible(1).

The survey undertaken in this paper shows that there is a difference of opinion as to whether there is a coordination problem on the donors' side, The problem of coordination between recipients was mentioned by some donors and recipients.

On the donors' side most donors emphasized the importance of coordination between different donors. Yet most did little about it since they beleived that the US was undertaking the dominant role in funding research in Egypt. Coordination between them is mostly undertaken on a personal basis. The importance of coordination between the donors lies in the fact that such coordination avoids duplication and aids in directing funds to neglected areas of research. When donors were asked whether there was duplication in the research undertaken in Egypt, a few indicated that there was duplication, a few indicated that the extent of

.../27

of duplication was insignificant, and several did not know whether or not there was any duplication. Donors believed that it is the responsibility of the Egyptian government to make sure that there was no duplication of research. That it should be the job of the Egyptian government to advise the donor agencies concerning duplication. However, there is no comprehensive survey in Egypt of all research undertaken to help the Egyptian government advice the donors.

Coordination between recipients was considered a major problem by some donors and recipients. The sectoral versus mini project was discussed with both donors and recipients. Most believed that the mini project, i.e. focusing on a particular problem in one descipline and carried out by one institution was easier to carry out in Egypt. Research carried out by more than one institution drains energy and resources. However, it was pointed out that in many cases Egypt needs multidisciplinary and multi-institutional research. Here there is the problem of how to get those employed in a particular research to work together and have a management control system. One donor indicated that when a research project is multi-institutional, conflict erupts between them. Such a conflict may be due to dissatisfaction with the role of the institution in the research, ambiguity regarding the purpose of the project or due to communication problems between these institution. The donor indicated that they try to refrain from being involved in such inter-institution conflict. He indicated that what is needed in such cases is a coordination body to help sove conflict and direct efforts.

3.9 The continuity problem:

Research is to search again, i.e to take another more careful look in order to find out more[1]. It is a process whereby knowledge is accummulated step by step. In this process continuity is of major importance to make optimal use of research results. Some donors and recipients indicated that the inavailability of a compilation of research undertaken in Egypt affects prospects of continuity. Donors have at times funded second and third phases of a research which they found of special importance. However, some indicated that knowledge of different research undertaken might help them fund some important research whose original funder has not been able to continue.

.../28

Further more one recipient indicated that some projects need to be followed up by second or third phases. However, the donor sometimes is not interested in supporting further phases of the project. Another problem here is that some projects stop abruptly due to the dissatisfaction of the donor with research progress. Donors at times require up date research reports every six months, while the project might need more time to develop. If dissatisfied donors may cancel the funds.

3.10 The Implementation problem:

In analyzing this problem we will first differentiate between three types of users for research in order to show how lack of implementation limits the usefulness of such research for society at large. There are three types of users:

(a) Initial users: this category includes those involved in the research process who interact with each other in order to formulate the problem and undertake the research.

(b) Intermediate users: this category include those who adopt the new knowledge and attempt to develop it further, in other words put it to use. Our interest here is in those individuals and organizations that use the knowledge developed deliberately for placement in the public domain. For example in agricultural research the knowledge would be passed on to the farmer free of charge. However, in order for the farmers to implement the research they might need extension services including equipment and machinery which in turn requires the allocation of appropriate funds.

(c) Final users: this category includes those whose lives are subsequently affected by the impact of the new knowledge, i.e.a broad sector of the population who would benefit for example from improvement in the production of crops.(1)

Naturally implementation depends on the nature of the research involved. Some projects are easier to implement than others. Applied research is easier to implement than theoretical ones. However, recipients

.../29

interviewed believed that a significant portion of the research undertaken was not implemented. In other words only the initial users, the scientists benefit from undertaking such research in terms of developing new knowledge for future research and the development of research skills. Thus, the research results are not transfered in many cases to the intermediate or final users. Recipients identified a number of attitudinal and material factors that inhibit the implementation process:

(a) Resentment of change: people resent change, the old generation does not want to try to introduce change. Few people want to undertake the responsibility for such change. There is a general fear of implementing new technology and the responsibility entailed in such implementation. In the words of one of the recipients "we do not have a gambling character; people prefer to cling to the status quo".

(b) Downgrading the importance of research results: some intermediate users do not feel the importance of applying the research, thus they are reluctant to cooperate.

(c) Availability of adequate equipment: at times the implementation of research results requires the availability of equipment. However, the intermediate user might not have such equipment or the equipment might be available but in poor condition. For example agriculture mechanization requires governmental funds to make such equipment available to individual farmers. Also, applying research results in factories might require purchasing new equipment or improving existent ones. Appropriate funds might not be available to acquire purchases or improving equipment.

(d) Cost-Benefit analysis: Implementation is affected by a cost benefit analysis. If the cost of applying the new knowledge exceeds its benefit from the point of view of the intermediate user, he is not likely to undertake it.

.../30

A number of donor agencies interviewed acknowledged the implementation problem. However, they indicated that they usually do not follow up the implementation of research. They believed that it was the responsibility of the Egyptian government to utilize the research results and that implementation was not in the domain of the donors. While it is true that implementation is mainly the problem of the Egyptian government, donor agencies could help in overcoming the problem. For example they can try to contact other donor agencies like the World Bank to help in implementation. They can try to expose some results to attract investment in a particular field. It would be helpful to try to tie research and investment, in other words develop a package in order to make better use of funds directed towards research. By implementing research results the population at large would benefit instead of limiting such benefit to the initial users only.

In addition to the aforementioned problems one recipient anticipated a future problem for research in Egypt. He was concerned over the possibility that the US might give aid to Egypt on a program rather than project basis. He indicated that if US aid is given to a particular sector there would be no specification of funds for research. He feared that such an aid policy may lead to a decline in the funds allocated to research; especially that there is a tendency in the Egyptian government to encourage the US to redirect money away from research to other pressing problems facing the country.

CONCLUSION
****

This paper was an exploratory research into funding research through external aid in Egypt during the period 1975-1982. The main focus was on finding out areas of concentration for such funds and the problems that faced research during this period.

Data presented in this paper has shown that major external funds have been directed to agricultural research and research in education. We have also indicated that more funds should be directed to research in the areas of health, environment , social sciences and arts and culture.

The interviews undertaken in this study pointed to several problems in the research process in Egypt. Among these problems are the absence of an overall research plan, the coordination problem, the data problem, the implementation problem and the problem of continuity. In order to overcome some of the problems encountered in the research process, and hence make better use of available funds, Egypt needs:

1- An annotated survey of research undertaken
2- An overall research plan
3- A coordination agency to supervise research undertaken
4- A closer follow up on the question of implementing research

FOOT NOTES:

Page 1

(1) Claire selltiz, Lawerence S. Wrightsman and Stuart W. Cook, Research methods in Social Relations (New York: Holt, Rinehart and Winston, 1976)

Page 3

(1) The number of those alive by 1982 was not given

Page 4

(1) Mostafa M. Kamel, Ragaei Sherif, Ellen Hindi, Jani Abdul Aziz, Naila Hamdy, Salah Rushdy. On going Research Projects (Cairo 1983)

(2) A list of these centres is provided in appendix I.

(3) A list of these centres and institutes is provided in appendix II.

Page 5

(1) Chester W. Clark, Donald D. Evans, David B. Luewis. Quentin W. Lindsey and Vivian I. Stannett. Egyptian Development and the Potential Role of Science and Technology (North Carolina; 1976)

Page 6

(1) Articles on joint research projects appeared in the El Ektisadi issues: October 4, 1982, October 11, 1982, October 18, 1982, November 1, 1982, November 15, 1982, November 29, 1982, December 6, 1982, December 13, 1982.

Page 8

(1) One of the major projects where research and action intermerge is the Family Planning Project initiated in US FY 1977 with total obligations until 1982 of $ 67.6 million. Another example here is the irrigation water management systems initiated in US FY 1981 with total obligations until 1982 of $ 38 million. This grant assists the Egyptian government to improve the operating efficiency of the total irrigation system and strengthen the ministry of irrigation's operational, maintenance and planning capabilities.

(2) A brief discription of each of there projects is provided in appendix III.

Page 9

(1) Angies Maddison. Foreign skills and Technical assistance

(2) The Academy of Science and Technology, Applied Science and Technology Project, first report (December 1981)

Page 11

(1) The Academy of Science and Technology, second report op.cit

(2) Appendix IV presents a listing of these projects

(3) Appendix V presents a listing projects sponsored by international institutions.

Page 12

(1) DRTPC, Technological Planning Program (Cairo, 1982)

Page 16

(1) No figures were found for some of the research projects funded by non-US donors. A list of these projects is presented in appendix VI

(2) There is a problem with the yearly aggregation. Some sources provided dates according to these donor's fiscal year while other sources provided dates according to the date of agreement between the donor and the Egyptian government. However since the period under sutdy was short, annual trend analysis was not our point of focus, our interest was mainly on the overall trend during the entire period. Thus while there is a problem in aggregating years which refer sometimes to different dates, we do not believe that this severly affects our analysis since our interest is in the overall total.

Page 17

(1) Five of the donors interviewd funded only feasibility studies,Sweden was also mainly funding feasibility studies. It funded a few small research projects. However, no figures we given.A List of these projects is included in appendix VI. The Swedish representative interviewed indicated that these funds were relatively low.

(2) This group is sponosred by the Food and agriuclture organization of the UN, the World Bank and the Un development prgramme and compromises in all some 45 countries, international and regional organizations, and private foundations. The group supports 13 international agriculture research institutions funds for which are provided by 35 contributing countries .

Page 21

(1) El Ektisadi, op.cit

Page 22

(1) Clark et al, op,cit

Page 26

(1) Mohga Badran, Interorganizational coordination: a case study of factors affecting coordination between organizations working on the Egyptian population and family planning program (Stockholm, University forthcoming)

Page 27

(1) Selltiz et al. op.cit

Page 28

(1) Clark et al, op.cit

APPENDIX I
****

RESEARCH CENTRES AFFILIATED
WITH UNIVERSITY IN EGYPT*
****

Cairo university

- Computer Centre
- Institute of Statistical Studies and Research
- Institute for African Studies and Research
- Cancer Institute
- Development Research and Technological Planning Centres**

Alexandria university:

- Institute of Medical Research
- Research Centre for Sansitary Engineering
- Computer Centre

Ain-Shams university:

- Centre for Middle East Research
- Computer Centre
- Centre for Changing the teaching of Science and Mathematics
- Centre for Childhood Studies

American university in Cairo:

- Computer Centre
- Social Research Centre

* Source: The academy of science and technology, Directory of Research Centers and Institutes (Cairo, 1979)

** EST not mentioned in Ibid. It was formally chartered in 1979

APPENDIX II

RESEARCH CENTRES AND INSTITUTIONS

AFFILIATED WITH MINISTRIES

AND AGENCIES IN EGYPT*

****

The Academy of Scientific Research and Technology

- National Research Centre
- Centre for Research and Development of Metalurgy
- Remote Sensing Centre
- Institute of Oceanography and Fisheries
- Institute for Astronomy and Geo-physics
- National Institute for Standardization
- Institute for Petroleum Research

Ministry of Higher Education:

- Higher Institute for Cooprative and Administrative Studies
- Higher Institute for Social Work in Cairo
- Higher Institute for Fine Arts (Lionardo Davinchi)
- Higher Institute for Social Work in Kafr El-Shiek
- Higher Institute for Social Work in Aswan
- Institute of Islamic Studies
- Research Center for Social Work in Alexandria

Ministry of Education:

- National Centre for Educational Research

Ministry of Culture:

- National Centre for Bibliographic and Computer Services
- Centre for Contemporary Egyptian Documents and History
- Centre for Cultural Authenticity
- Centre for Research and Maintenance (Egyptian Authority of Antiquities

* Source: Ibid

- National Centre for Filming Education
- Centre of Life and Art
- Centre for Engineering Research at El-Haram
- Institute for Broadcasting and Television
- Arab Language Scholar Forum

The Academy of Arts:

- Higher Institute for Ballet
- Higher Institute for Filming
- Higher Institute for Theatrical Art
- Higher Institute for Arabic Music
- Higher Institute for Artistic Criticism
- Higher Institute for Music (Concervatoire)
- Centre for Folklore Studies

Ministry of Industry and mineral resources:

- General Agency for research Affairs -Chemistry Department
- Department for Vocational Training and Production sufficiency
- Egyptian General Agency for Unified Measurement
- General Egyptian Agency for Survey and Geology
- El Tibine Institute for Mineral and Metal Studies
- Department for General Research and Projects
- The Egyptian general Company for Bottling (Pepsi Cola)
- Research Department at the Cairo Company for food flavors and Essences
- Research Department at the Egyptian Iron and Steel Company
- Research Department at El-Nasr Company for Cigaretts
- Sugar Cane Research Department
- Laboratory for Production Research
- Research laboratory at Misr Sibali El-Bida
- Laboratory for Research and Quality Control at the Egyptian Diary Company
- Research Laboratory at Edfina Company
- Control Laboratories at the National Company for Spinning and Weaving

- Laboratories and Research at the Cairo Company for Dying and Preparation.

Ministry of Electriciy

- Nuclear Research Centre-(Agency of Atomic Energy)
- National Centre for Radiation Research and Technology
- Agency for Atomic Energy
- Research Department at Misr Electrical Agency

- Agriculture Research Centre- Ministry of Agriculture
  - Research Institute for Land and Water
  - Cotton Research Institute
  - Field Crop Research Institute
  - Horticulture Research Institute
  - Plant Protection Research Institute
  - Plant Pathology Research Institute
  - Research Institute for Egyptian Flora
  - Research Institute for Animal Production
  - Research Institute for Animal Health
  - Research Institute for Agricultural Economics
  - Research Institute for Agricultural Extension and Rural Development
  - Desert Research Institute
  - Central Laboratory for Research Design and Statistical analysis
  - General Department for Agriculture Research Stations
  - International Centre for Rural Development
- Water Research Centre- Ministry of Irrigation
  - Research Institute for Water Distribution and Irrigation methods
  - Survey Research Institute
  - Ground Water Research Institute
  - Institute of Weed control and Channel Maintenance
  - Mechanic Research Institute
  - Research Institute for Construction, Soil mechanics and Foundations
  - Hydraulics and Sediments Research Institute
  - Research Institute for the Side Effects of the High Dam
  - Research Institute for the Development of Water Resources
  - Drainage Research Institute

Ministry of Transportation

- The General Agency for Housing, Construction and Urban Planning Research
- General Agency for Desert Planning
- Arab Bureau for Engineering consultancy and design

Ministry of Health

- Institute for Tropical Research
- Cordiology Institute
- Institute for Infantil Paralysis Institute
- Institute for Nutrition
- Diabetis Institute
- Ophthalmic Research Institute
- Specialized Educational Centre for Prosthesis at El Sahel Hospital
- Centre for Neurology at El Sahel Hospital
- Medical Entimology Institute
- Institute for Hearing and Speech
- Centre for Dental Research
- Applied and Field Research Centre in Alub
-
- Population and Family Planning Organization
- Nasar Institute for Research and Treatment

Ministry of Social Affairs

- National Centre for Social and Criminological Research

Ministry of the Interior

- Police Academy
- Department of crimenological Evidence

Ministry of Tourism and Civil Aviation

- Department for Scientific Research at the
- Training Centre for Civil Aviation

Other Agencies

- Institute for National Planning
- National Computer Centre
- Research Centre for Population Studies
- Centre of General Mobilization Research

- Department for Research and Translation
- National Institute for Development administration
- Central Research Department at the Central Agency for Organization and Administration
- Department for Research and Statistics at the Youth Organization
- Centre for Research at the Suez Canal Authority
- Regional Middle East Centre for Radio Active Isotopes
- Research Institute for Arab Studies
- Centre for Political and Strategic studies at Al Ahram Newspaper
- Demographic Centre

APPENDIX III
****

Abstracts on Research Projects Funded by USAID in Egypt 1975-1982

(1) Applied science/Technology Research.

This grant assists the Egyptian Academy for Scientific Research and Technology to improve the effectiveness of science and technology resources in applied research directed toward national development goals and end users. Since 1977 nine Demonstration and R & D activities have been launched ranging from crops for arid/semi arid land to biogas and wool wax. Two new R & D activities were added in 1982, pharmaceuticals and bentonites.

(2) Development Planning Studies

This project establishes a permanent institution in association with Cairo Unitersity to mobilize Egyptian academic resources for applied research on selected developmental problems and provide assistance to government technical and planning ministries on project design and implementation. A.DRTPC computer Centre was operative by 1983.

(3) Water use and Management

The project focuses on developing and testing pilot programs of irrigation and water management in three different agricultural areas: Mansuriya & Kafr El Sheikh in the Delta and Menya in uppper Egypt. Its aim is to develop and demonstrate replicable improved irrigation water management and associated practices which increase production on the farm. On farm experiments conducted under the project included the use of pipelines, elivated canals, land levelling and demand irrigation techniques. The role of farmer organizations and methods of disseminating information are also being studied. Relvant training is undertaken in the project.

(4) Agricultural Development Systems

The project is designed to create an institutional capability to plan and conduct work in agricultural development within the ministry of agriculture and related agencies to increase production profitability , with main emphasis on agricultural economics and horticulture studies have also been conducted in areas such as agricultural

statistics, agricultural libraries and live stock production.

(5) Poultry Development

The project is aimed at developing programs to help Egypt increase production of poultry meat and eggs. Nine principal tasks are included in the project (1) develop a capacity to assess needs in the sector (2) improve their breeding/hatchery forms

(3) provide recommendations for a national breed and hatchery improvement program. (4) provide policy recommendation to the Egyptian general poultry company (5) develop a plan to increase the availability of pharaceuticals (6) examine the role of the village flock in the poultry industry (7) implementation of a poultry vaccine and pharmaceutical domestic demand study (8) implementation of a disease control program on the selected breeding/hatching farms and participating traditional hatcheries (9) provide commodities, training and technical assistance to establish three additional breeding/hatching poultry farms.

(6) Major Cereals

This project is designed to provide new information and knowledge for the increased cereal grain and legume production by improving research and extension capabilities. Research programs are beign conducted on maize, wheat, sorghum and barley using facilities at research stations at Sakha, Sids, Shandaweel and Gemmeiza. Farming systems research is being conducted to relate on-farm decision making to project cropping activities. Extension programs have been improved although the provision of commodities and plans are underway for the construction of new physical facilities. Initial results from both wheat and maize activities have shown substantial yield increases.

(7) Small scale agricultural activities

This project was designed to provide technical assistance to the ministry of agriculture to support the adaptation, modification, field testing and extension of intermediate technology. About 15 project activities (e.g rice transplanters, power units, sprayers,

cultivators, planter, etc..) have been funded and are in various stages of development/extension. Many Egyptian universities and organizations are assisting with the adaptation engineering. Publication on the various items being modified are being published and distributed locally. By 1982 there were 53 sub-projects that address irrigation improvements, land and tillage, fertilizer application, horticulture information for both fruit and vegetable development, ornamental and oil bearing trees as well as sub-projects that concern themselves with small scale machinery repare.

(8) Rice Research Centre and Training

This project provides new information and knowledge on rice production; seed processing and storage by increasing research, extension and training capabilities in Egypt. This is to be accomplished by establishing a national rice institute at the Sakka research station staffed by a cadre of well qualified research extension and training specialists.

(9) Agricultural Management Development

This grant assists the ministry of agriculture to establish a centre for management development. A few of the minitry's employees have recieved any systemic training in management of personnel and other resources. Internal management analysis will also be conducted to help solve the ministry's operational management problems. This project includes technical assistance, physical construction of new training Centre at the Barrage area outside Cairo and commodities in support of the program.

(10) Agricultural Data collection Analysis

This project is assisting the agricultural economics research institute in improving its methods used in data collection. The ministry - capacity to do data analysis will be strengthened to enable it to over come current constraints in planning for agricultural development activities and to formulate the optimum mix of governmental plicies needed to stimulate this development. The project will introduce up-to-date data collection techniques such as satillite remote sensing.

(11) Rural Health Delivery System

This grant is designed to assist the government identify and validate through field trials, the prinicipal factors limiting the productivity and out reach of the rural health or eliminate these factors. Project activities continue in the four governorates of Dakahliya, Fayoum, Beheira and Assuit.

(12) Integrated Social work Training Centres

This grant assists the ministry of social affairs to expand and improve social services. A centre designed to train social workers was established in Tanta. This project was aimed at funding ways in which social services, such as childcare centres and vocational training, could be made more responsive to community needs.

(13) University Linkages

This project supports a plan to mobilize, enhance and supplement a selected portion of Egyptian university faculty by directing their efforts under sub-projects carried out jointly by Egyptian and American universities on priority Egyptian developmental problems. This will provide a practical base for capacity building and will support proposed or on-going problem solving needs while at the same time improving initial skills areas.

Appendix IV

Research Projects Funded by Egyptian sponsors and undertaken by the Development Research and Technological Planning Centre

Project	Sponsor
- Structural Planning for El Amal City	General Organization for Physical Planning
- Study of the Cement Market in Egypt	Egyptian Cement Offices
- Education Information System	Ministry of Education
- Design and Mechanization of the Financial and Managerial System of the Family Planning Org.	Family Planning and Population Agency
- Planning and Design of Youth Village	Ministry of Housing
- Development of Pharmaceutical Chemical System	Ministry of Health
- Performance of Paraffenic Asphalt Cements in Road Construction	General authority for Roads- Arab Contractors-Nile Co. for Roads- El Nasr Contructing Co. - Nile Co. for Road Constructors - Nile Co. for desert Road - Nile Co. for Construction and paving
- Guidlines for urban Areas Planning	General Org. for Physical Planning
- Studies of the Central Nasr and Gesr El Suez Workshop	Cairo transport authority
- Replanning and Development of El Fayoum City	El Fayoum Governorate
- Optimum Policies for maintenance of Delta Paved Road Network	General Authority for Roads and Bridges
- Study of Man Power Demand at both occupational and Sectorial Levels	Ministry of Planning
- Study of the Sinai Society and its Structure	Ministry of State

* Source: Developement Research and Technological Planning Centre, Newsletter, December 1982.

Apendix VI

Research Projects Funded by non-us Donors 1975-1982

(No figures available)

Project	Donor
- Rodent Control	UK·
- Research and Treatment in Urinary Bladder Carcinoma	Sweden
- Anti genic Mosaic of different life stages of Schitosoma parasites and the serodiagnosis of schistosomia application of TIA	Sweden
- Delta Barrage	UK
- Building Research	UK
- Leaching Trials in the Zawia Area of the Northern Delta	UK
- Cotton Pest Control	UK
- Contributions to Flora of Egypt	Sweden
- Project on the Improvement of the Nutritionalquality in Barley and spring wheat	FA + Sweden
- Soiar Destinationof sea water	Germany
- Appraisal Study of and recommendation on the most import structural, Economic and Financial problems of Egypt.	Germany

* Source: - UK aid to Egypt op.cit.
- Projects in Egypt Implemented or supported by GTZ (Germany)
- Publication on projects Funded by SAREC (Sweden)
- Interviwes wiht respective donors

** See Appendix V

Appendix V

Research Projects Funded by International Donors and undertaken by the Development Research and Technological Planning Centre

Project	Title
- Economy Wide Modeling and social accounting Matrix	USAID, Egypt-World Bank
- Employment of Women: Patterns and Demograhic Change	Inter. Labor Org. UN Fund for Population Activities
- Economic, Social and Cultural Characteristics of Egyptian pilgrims (Hujj Project)	Pilgrimage Research Centre University of King Abd El Aziz Jeddah, Saudi Arabia

* Source: Ibid.